PATENT APPLICATION

○ TRANSMISSION BIT ORDER (D0 TO D9 SHOW TRANSMITTED DATA, C4 TO C0 SHOW CRC BITS)

CONVENTIONAL POSTPOSITION : D9,D8,D7,D6,D5,D4,D3,D2,D1,D0,C4,C3,C2,C1,C0

PREPOSITION : C4,C3,C2,C1,C0,D9,D8,D7,D6,D5,D4,D3,D2,D1,D0

FIG.1A

○RECEIVED DATA BIT AND RECEIVED CRC BIT
(WHEN DETECTING A POSITION WHERE THE NUMBER OF BITS IS SMALLER BY ONE FROM THE CORRECT RATE POSITION)

CONVENTIONAL POSTPOSITION: DATA = D9,D8,D7,D6,D5,D4,D3,D2,D1 CRC=D0,C4,C3,C2,C1

PREPOSITION: DATA = D9,D8,D7,D6,D5,D4,D3,D2,D1 CRC=C4,C3,C2,C1,C0

FIG.1B

○TRANSMISSION BIT ORDER (D0 TO D9 SHOW TRANSMITTED DATA, C4 TO C0 SHOW CRC BITS)

CONVENTIONAL POSTPOSITION : D9,D8,D7,D6,D5,D4,D3,D2,D1,D0,C4,C3,C2,C1,C0

NEW POSTPOSITION : D9,D8,D7,D6,D5,D4,D3,D2,D1,D0,C0,C1,C2,C3,C4

FIG.2A

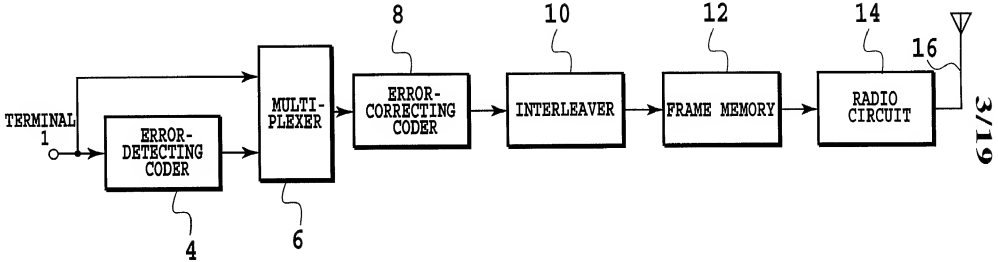
○RECEIVED DATA BIT AND RECEIVED CRC BIT
(WHEN DETECTING A POSITION WHERE THE NUMBER OF BITS IS SMALLER BY ONE FROM THE CORRECT RATE POSITION)

CONVENTIONAL POSTPOSITION: DATA =D9,D8,D7,D6,D5,D4,D3,D2,D1 CRC=D0,C4,C3,C2,C1

NEW POSTPOSITION: DATA =D9,D8,D7,D6,D5,D4,D3,D2,D1 CRC=D0,C0,C1,C2,C3

FIG.2B

PUBLISHED SEARCH REPORT



TRANSMITTER CONFIGURATION

FIG.3A

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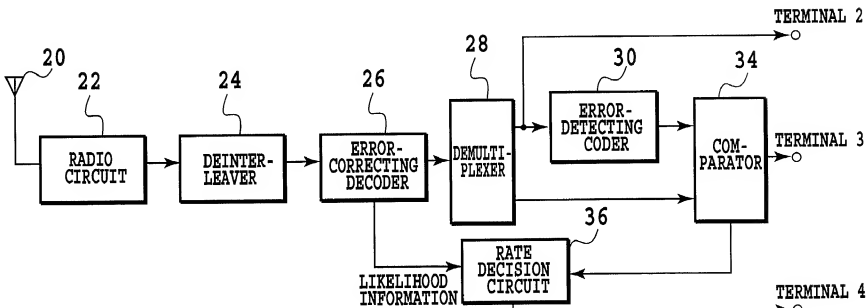

RECEIVER CONFIGURATION

FIG.3B

Printed: 5/23/2001

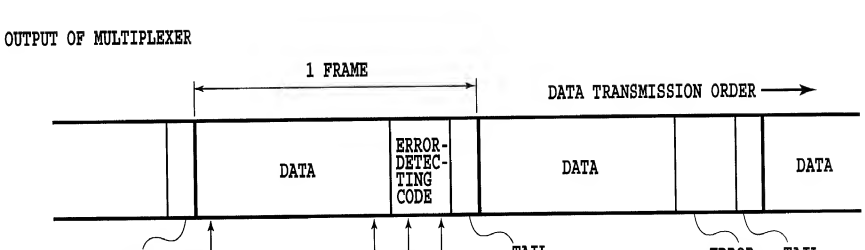

FIG.4A

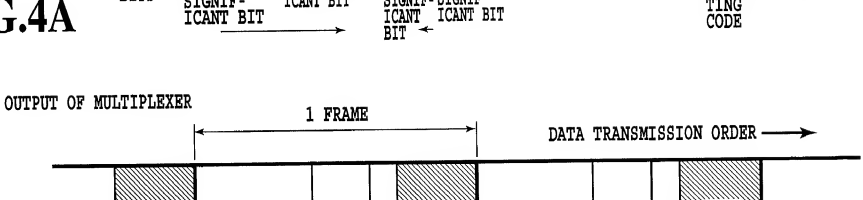

FIG.4B

09/763375

FIG.5

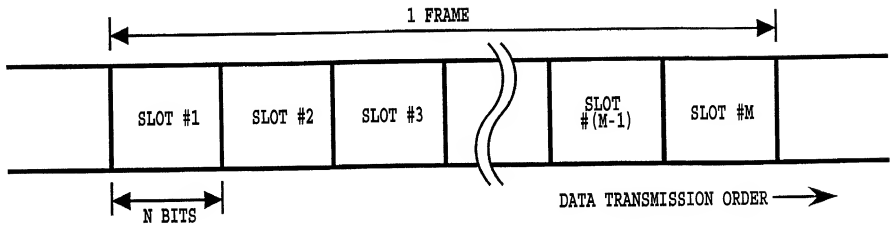

FIG.6

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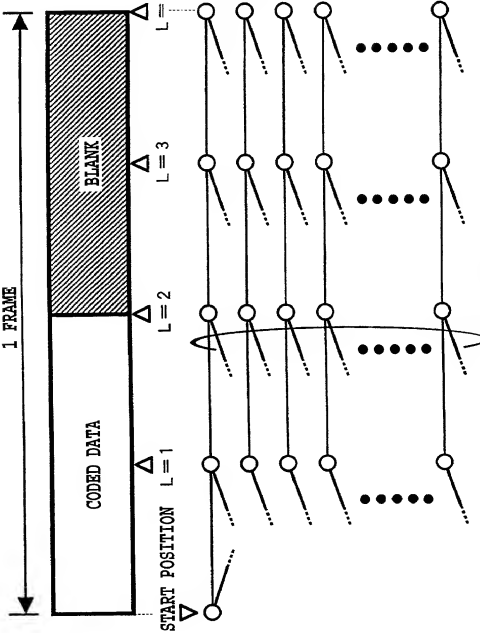

1 FRAME
CODED DATA
BLANK
DECODING START POSITION
L = 1
L = 2
L = 3
L = 4
ASSUMED FINAL BIT POSITION #L
STATE 0 (ALL ZERO)
STATE 1
STATE 2
STATE 3
STATE K
DECODED DATA SEQUENCE

FIG.7

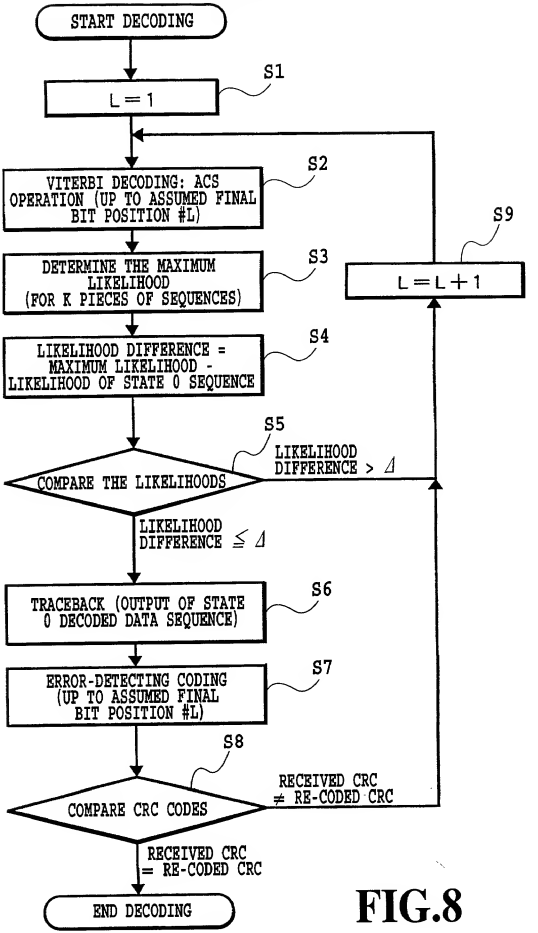
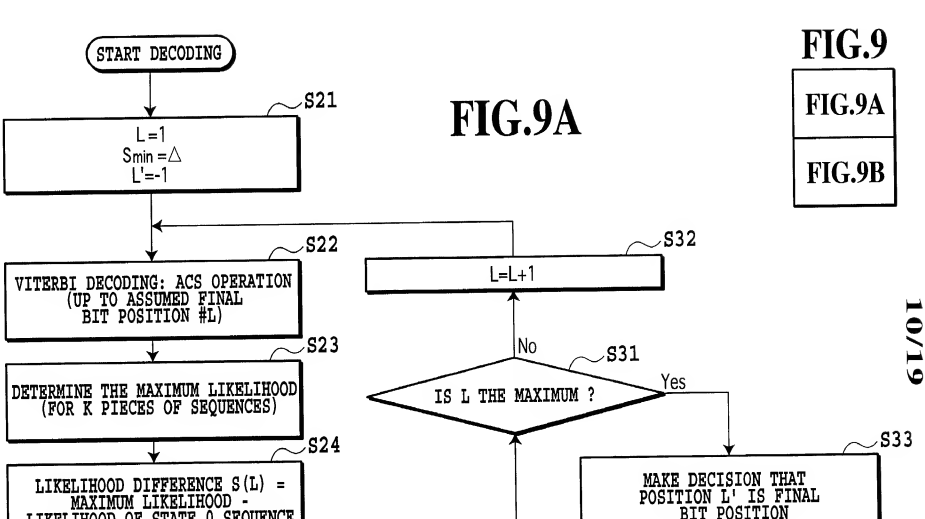

START DECODING
S1
L = 1
S2
VITERBI DECODING: ACS OPERATION (UP TO ASSUMED FINAL BIT POSITION #L)
S3
DETERMINE THE MAXIMUM LIKELIHOOD (FOR K PIECES OF SEQUENCES)
S4
LIKELIHOOD DIFFERENCE = MAXIMUM LIKELIHOOD - LIKELIHOOD OF STATE 0 SEQUENCE
S5
COMPARE THE LIKELIHOODS
LIKELIHOOD DIFFERENCE > Δ
LIKELIHOOD DIFFERENCE ≦ Δ
S9
L = L + 1
S6
TRACEBACK (OUTPUT OF STATE 0 DECODED DATA SEQUENCE)
S7
ERROR-DETECTING CODING (UP TO ASSUMED FINAL BIT POSITION #L)
S8
COMPARE CRC CODES
RECEIVED CRC ≠ RE-CODED CRC
RECEIVED CRC = RE-CODED CRC
END DECODING

FIG.8

FIG.9

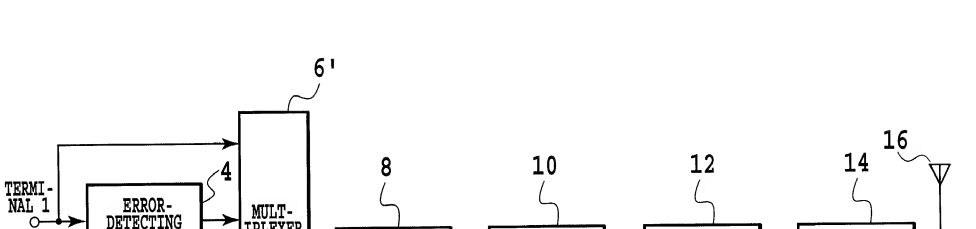
FIG.9A

FIG.9B



S26
TRACEBACK
(OUTPUT OF STATE 0
DECODED DATA SEQUENCE)
S27
ERROR-DETECTING CODING
(UP TO ASSUMED FINAL
BIT POSITION #L)
S28
COMPARE CRC CODES
RECEIVED CRC
≠ RE-CODED CRC
RECEIVED CRC
= RE-CODED CRC
S29
COMPARE Smin AND S(L)
Smin≦S (L)
S30
Smin =S (L)
L'=L

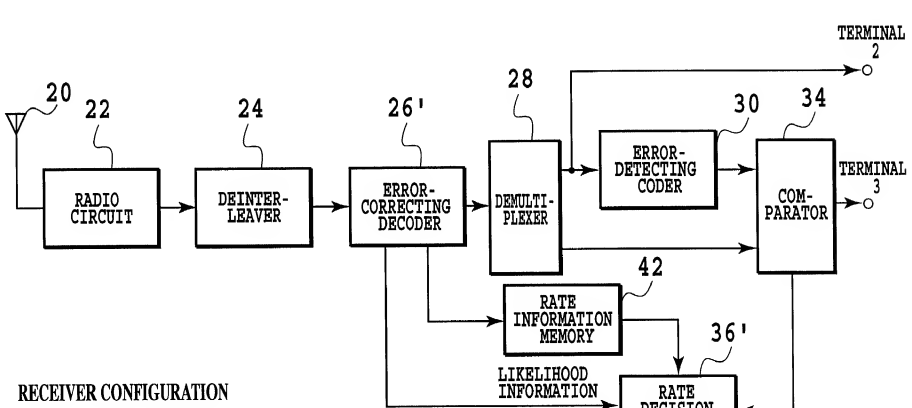
FIG.9B



TRANSMITTER CONFIGURATION

FIG.10A

09/763375



RECEIVER CONFIGURATION

FIG.10B

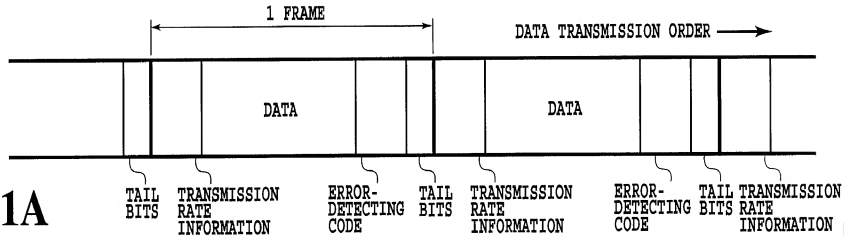


FIG.11A

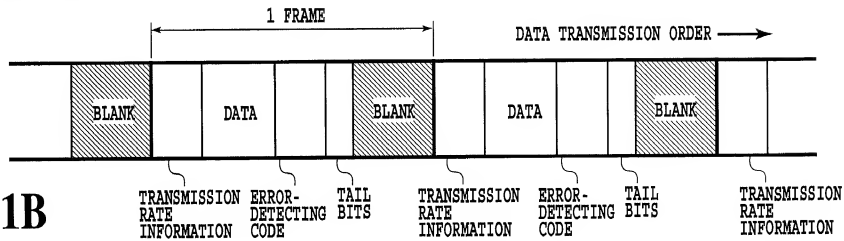


FIG.11B

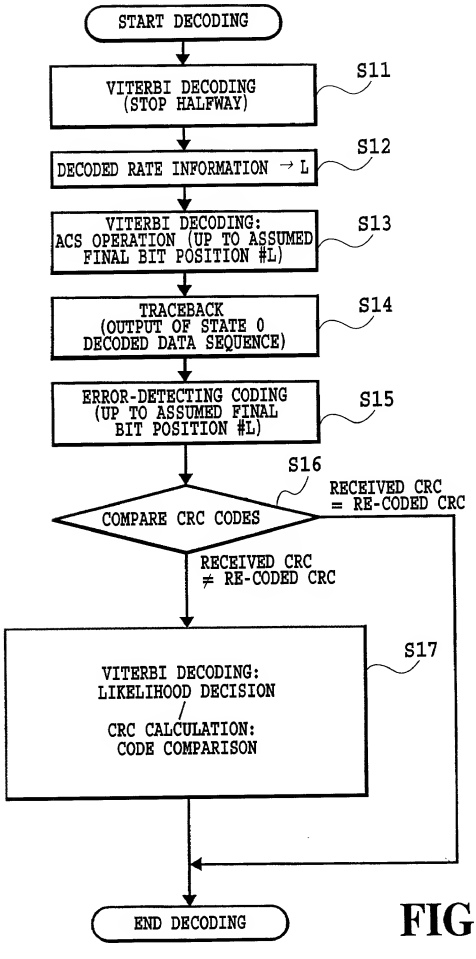

START DECODING
VITERBI DECODING (STOP HALFWAY)
S11
DECODED RATE INFORMATION → L
S12
VITERBI DECODING: ACS OPERATION (UP TO ASSUMED FINAL BIT POSITION #L)
S13
TRACEBACK (OUTPUT OF STATE 0 DECODED DATA SEQUENCE)
S14
ERROR-DETECTING CODING (UP TO ASSUMED FINAL BIT POSITION #L)
S15
S16
COMPARE CRC CODES
RECEIVED CRC = RE-CODED CRC
RECEIVED CRC ≠ RE-CODED CRC
S17
VITERBI DECODING: LIKELIHOOD DECISION
CRC CALCULATION: CODE COMPARISON
END DECODING

FIG.12

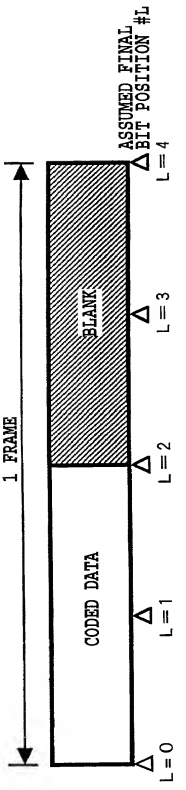

1 FRAME
CODED DATA
BLANK
ASSUMED FINAL BIT POSITION #L
L = 0
L = 1
L = 2
L = 3
L = 4

FIG.13

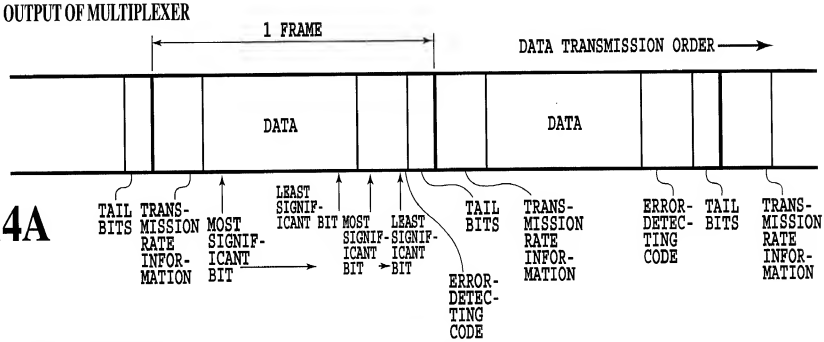


FIG.14A

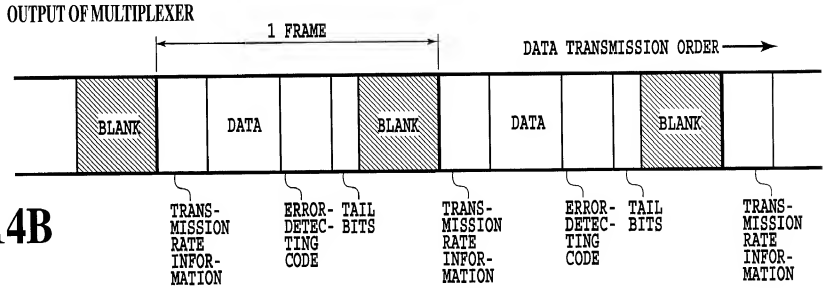


FIG.14B

09/763515

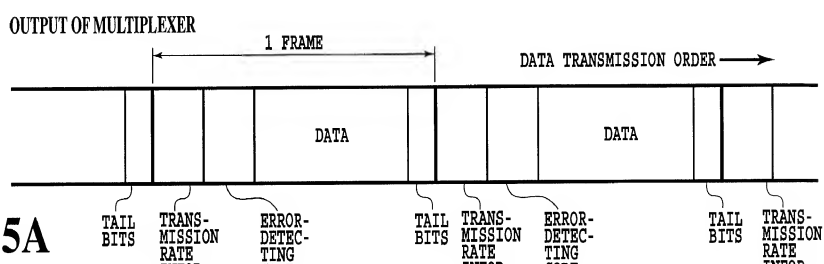


FIG.15A

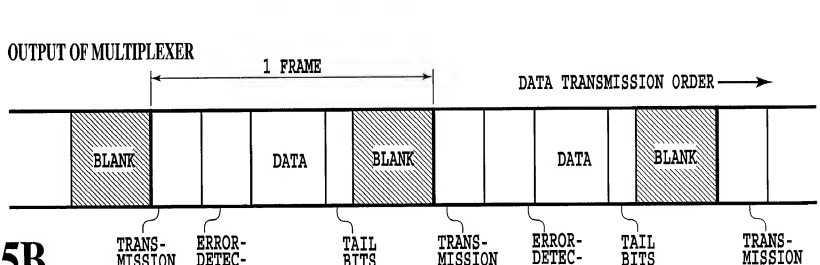


FIG.15B

09/763375

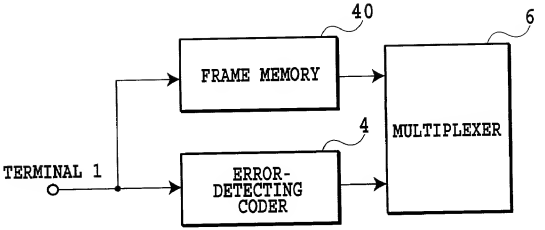


FIG.16A

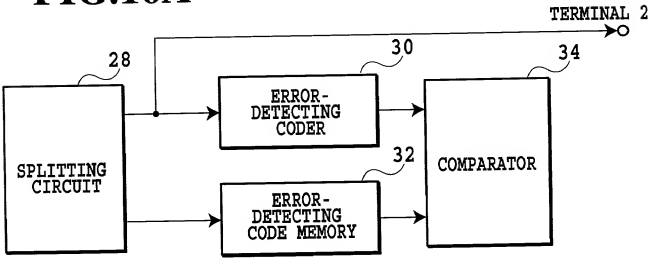


FIG.16B